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| EXAMINER | |
|---|---|
| CROWDER, CHUN | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/509,292 | DRIVAS, DIMITRIOS T. | |
| | Examiner | Art Unit | |
| | Chun Crowder | 1644 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *12 October 2006 and 21 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) *7-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. Applicant's election with traverse of Group I and species of SEQ ID NO:16 and Diphtheria toxoid (DT) as a carrier, filed on October 12, 2006 and September 7, 2006, is acknowledged.

The traversal is on the ground that Jose et al. (JBC 1994. 179:881-887. Reference cited on IDS filed 01/03/05) do not teach human eotaxin, eotaxin vaccines or immunogenic conjugates, and method of treating as claimed. Therefore, applicant argues that there is unity of invention.

This is not found persuasive for following reasons:

Applicant's argument that Jose et al. do not teach human eotaxin has not been found persuasive because the instant claims are drawn to eotaxin, not human eotaxin. Applicant appears to argue limitations not recited in the instant claims. Further, Jose et al. teach an immunogenic composition comprising eotaxin for reasons of record set forth in the Office Action, mailed on September 7, 2006.

Thus, the inventions listed as Groups I - V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features when viewed over the prior art teachings of Jose et al.

Therefore, the restriction requirement is still deemed proper and is made FINAL.

Claims 1-15 are pending.

Claims 6 -15 have been withdrawn from further consideration by the Examiner, under 37 C.F.R. 1.142(b), as being drawn to nonelected inventions.

Claims 1-5 are currently under consideration as they read on the elected invention of a method for treating a subject by generating an active immune response, asthma, SEQ ID NO:16 and Diphtheria toxoid (DT).

2. Applicant's IDSs, filed on January 3, January 5, 2005, February 11, 2005, and December 22, 2005 have been considered.

3. The application is required to be reviewed and all spelling, TRADEMARK, and like errors corrected.

Trademarks should be capitalized or accompanied by the ™ or ® symbol wherever they appear and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent application, the proprietary nature of the trademarks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-5 are indefinite in the recitation of "a condition mediated by eotaxin" because the metes and bounds of the phrase are unclear and ambiguous. The "condition" is not defined by the claims and the instant specification does not provide a standard for ascertaining the nature or parameters of the "patient", in turn, one of ordinary skill in the art would not be reasonably apprised of the metes and bounds of the inventions or the nature or parameters by which to determine said metes and bounds.

Applicant is invited to amend the claims to recite the particular characteristics of the patient population or specific condition mediated by eotaxin (e.g. asthma as recited in claim 2).

Applicant is reminded that the amendment must point to a basis in the specification so as not to add any new matter. See MPEP 714.02 and 2163.06.

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1-5 are drawn to a method for treating a subject for a condition mediated by eotaxin by generating an active immune response using eotaxin and a portion of eotaxin.

The specification discloses that the claimed method can be achieved by actively immunizing the subject or patient with eotaxin immunogenic composition to induce autoantibodies (e.g. see page 10 of the instant specification).

The specification as-filed does not enable one skilled in the art to practice the claimed invention without undue amount of experimentation.

The stat of the art (Gutierrez-Ramos et al. 1999. Immunology Today. 20;11:500-504 reference on IDS filed on December 22, 2005) recognizes that eotaxin not only induces chemotaxis and migration of eosinophils and is also a potent initiator of respiratory burst in eosinophils that are recruited and accumulated in the lung during asthma attack (see entire document, particularly page 501).

Similarly, the instant specification discloses that eotaxin can stimulate eosinophil accumulation; in inflammatory conditions e.g. asthma, eotaxin contributes to eosinophil accumulation and degranulation resulting in cell damages (e.g. see pages 5-6 of the instant specification).

The instant claims are drawn to a method for treating a condition mediated by eotaxin via stimulating antibody response to eotaxin; yet eotaxin is the inflammatory mediator. It appears that applicant's method relies upon administering an inflammatory mediator to treat an inflammatory condition. However, the instant specification does not appear to provide sufficient objective evidence that autoantibodies can be generated in such a fashion and even if generated, the autoantibodies would not be neutralized by the existing eotaxin during inflammatory condition; and there is insufficient objective evidence that such autoantibodies would be able to be used for the claimed method of treating a condition mediated by eotaxin. Therefore, it is unpredictable if eotaxin can be administered to treat any condition mediated by eotaxin itself, much less that sufficient autoantibodies can be generated in such manner.

There is insufficient objective evidence that accurately reflects the relative efficacy of the claimed method for treating a subject for a condition mediated by eotaxin by generating an active immune response using eotaxin, a portion of eotaxin, and/or an immunogenic analog of the eotaxin, commensurate in scope with the therapeutic methods encompassed by the claimed invention.

Further, the specification does not provide sufficient guidance regarding how to make and use a portion of eotaxin, and/or an immunogenic analog of the eotaxin as claimed. Francis et al. (Current Opinion in Allergy and Clinical Immunology 2005. 5:537-543), in addressing peptide-based vaccination, teach that peptides contain little or no secondary or tertiary structure compare to full length proteins; and in certain circumstance, peptides cannot generate specific antibodies against wild type proteins (see entire document, particularly left column on page 540). Further Francis et al. teach the selection of the appropriate peptides for use in immunotherapy remains a challege (see left column on page 514, in particular).

Therefore, the specification has not provide sufficient guidance regarding which portions of the eotaxin and/or which analog of the eotaxin are required to induce active immune response in a subject for the claimed method.

Furthermore, pharmaceutical therapies in the absence of in vivo clinical data are unpredictable for the following reasons; (1) the protein may be inactivated before producing an effect, i.e. such as proteolytic degradation, immunological inactivation or due to an inherently short half-life of the protein; (2) the protein may not reach the target area because, i.e. the protein may not be able to cross the mucosa or the protein may be adsorbed by fluids, cells and tissues where the protein has no effect; and (3) other functional properties, known or unknown, may make the protein unsuitable for in vivo therapeutic use, i.e. such as adverse side effects prohibitive to the use of such treatment. See page 1338, footnote 7 of Ex parte Aggarwal, 23 USPQ2d 1334 (PTO Bd. Pat App. & Inter. 1992).

Consequently, the experimentation left to those skilled in the art to determine how to make and use the claimed method for treating a subject for a condition mediated by eotaxin using eotaxin, a portion of eotaxin, and/or immunogenic analog of the eotaxin, is extensive and undue.

In view of the quantity of experimentation necessary, the limited working example, the unpredictability of the art, the lack of sufficient guidance in the specification, and the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

8. Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The following *written description* rejection is set forth herein.

Claims 1-5 encompass "eotaxin" and "a portion of etoaxin" as part of the invention.

There is insufficient written description in the specification as-filed of "eotaxin" and "a portion of etoaxin" as recited in the instant claims.

The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus. (See Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001, especially page 1106 3rd column). A "representative number of species" means that the species which are adequately described are representative of the entire genus. Thus, when there is substantial variation within the genus, one must describe a sufficient variety of species to reflect the variation within the genus. MPEP 2163 II.A.3a.ii.

The claims recite a genus "eotaxin" and "a portion of etoaxin" as part of the invention without providing a physical structure or testable functional activity for the "eotaxin" and "portion of etoaxin".

The genus of the "eotaxin" and "a portion of etoaxin" are therefore extremely large. Applicant has disclosed only full length human eotaxin (SEQ ID NO:1) and peptide fragments listed in SEQ ID NOs: 2-38 (see pages 11 and 14-15 of the specification as-filed). Thus Applicant has disclosed only a limited species of the "eotaxin" and "a portion of etoaxin", namely full length human eotaxin of SEQ ID NO:1 and eotaxin fragments of SEQ ID NOs:2-38.

The claimed "eotaxin" and "a portion of etoaxin" lack a common structure essential for their function and the claims do not require any particular structure basis or testable functions be shared by the instant "eotaxin" and "a portion of etoaxin".

It does not appear based upon the limited disclosure of full length human eotaxin of SEQ ID NO:1 and eotaxin fragments of SEQ ID NOs:2-38 alone that Applicant was in possession of the necessary common attributes or features of the elements possessed by the members of the genus in view of the limited number of species disclosed and the extensive variation permitted within the genus of "eotaxin" and "a portion of etoaxin".

"Adequate written description requires a precise definition, such as by structure, formula, chemical name or physical properties, not a mere wish or plan for obtaining the claimed chemical invention." Regents of the University of California v. Eli Lilly and Co. 43 USPQ2d 1398 (Fed. Cir. 1997).

The disclosure must allow one skilled in the art to visualize or recognize the identity of the subject matter of the claim. Id. 43 USPQ2d at 1406.

In the absence of disclosure of relevant, identifying characteristics of the "eotaxin" and "a portion of etoaxin", there is insufficient written disclosure under 35 U.S.C. 112, first paragraph.

Applicant is directed to the Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 USC 112 is severable from its enablement provision (see page 1115).

Amending the claims to recite the SEQ ID NOs of the claimed eotaxin and eotaxin fragment would obviate this rejection.

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by McDonald et al. (WO 00/04926) (see entire document).

McDonald et al. teach methods for treating a subject such as human for a condition (e.g. asthma) mediated by chemokines including eotaxin by administering eotaxin, functional fragments thereof bound to carriers, e.g. Diphtheria toxoid (DT) (see entire document, particularly pages 40, 42, 54, Table 2 on page 58 and 59, page 69, pages 129-130).

Given that the reference teaches the method of treating the same disease (e.g. asthma) by administering the same chemokine, eotaxin conjugated to the same carrier DT, the claimed "generating an active immune response in the subject" and "generates antibodies in the subject" would be inherent properties of the methods taught by McDonald et al.

It does not appear that the claim language or limitations result in a manipulative difference in the method steps when compared to the prior art disclosure. Also, see Bristol-Myers Squibb Company v. Ben Venue Laboratories 58 USPQ2d 1508 (CAFC 2001).

Therefore, the reference teachings anticipate the claimed invention.

11. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Bachmann et al. (US 2003/0157479) (see entire document).

Bachmann et al. teach methods of treating diseases such as asthma in a subject such as human by immunizing said subject with a composition comprising antigenic determinant of proteins including eotaxin peptide fragments conjugated to a protein carrier (see entire document, particularly Detailed Description of the Invention on paragraphs [0054]-[0086]).

Therefore, the reference teachings anticipate the claimed invention.

12. No claim is allowed.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun Crowder whose telephone number is 571-272-8142. The examiner can normally be reached on 8:30-5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on 571-272-0841. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Chun Crowder, Ph.D.
Patent Examiner
May 17, 2007

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